OGDEN ARSENAL, TRACER & IGNITER COMPOSITION BUILDING
(OGDEN ARSENAL, MAGAZINE)
(OGDEN ARSENAL, BUILDING 1946)
(OGDEN ARSENAL, BUILDING 946)
6452 North Loop
Layton Vicinity
Davis County
Utah

HAER No. UT-84-AU

HAER
UTAH
6-LAY.V,
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

Historic American Engineering Record
National Park Service
Department of the Interior
Denver, Colorado 80225-0287

HISTORIC AMERICAN ENGINEERING RECORD

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Location: 6452 North Loop, North Loading Plant, Hill Air Force Base, Layton Vicinity, Davis County, Utah

Note: For shelving purposes at the Library of Congress, Layton Vicinity in Davis County was assigned as the "official" location of Hill Air Force Base. Building 1946 is actually in the Ogden Vicinity of Weber County.

UTM: 12-414810-4556940

Date of Construction: 1942

Architect: Unknown

Builder: Unknown

Present Owner: Hill Air Force Base

Present Use: Munitions Storage

Significance: Building 1946 was used to prepare chemicals that were used in the production of 37mm anti-tank ammunition, and it provides particularly vivid images of the processes involved in the manufacture and storage of munitions at Ogden Arsenal. In addition, this building contributes to a deeper understanding of the U.S. Army build-up which occurred on the eve of and during World War II.

History: In addition to its legacy as a war material storage facility, Ogden Arsenal manufactured munitions during World War II. The introduction of various types of ammunition manufacture at the installation necessitated the construction of many new buildings which took various forms as related to their function in the overall manufacture and storage process. Building 1946 was used to prepare chemicals needed in the production of munitions, and its design directly reflects the processes that occurred inside.

Tracer and Igniter chemicals that were used in the production of 37mm anti-tank ammunition were prepared in Building 1946. The building is bisected lengthwise down the center, with two separate chemicals traveling through the building from north to south. Phosphorus, the Tracer component, left a smoky and luminous trail behind the 37mm shell as it flew through the air toward its target. Strontium, the Igniter component, ignited spontaneously in air when the force of impact from striking the target dispersed it into fine particles. This caused a secondary fire that supplemented the initial impact of the shot. Small amounts of these chemicals were brought to Building 1946 from nearby rest houses.

Phosphorus was confined and processed in the west rooms, while Strontium was prepared in the east rooms. Small amounts of each chemical were stored in the two northernmost rooms, and transferred into adjacent rooms where they were separately weighed, screened, and dried. They were then blended together in the two southernmost rooms of Building 1946. Since this was the most dangerous and erratic step of the process, these two rooms were separated from the rest of the building by an open passage that served as a buffer between the blending operation and the screening, weighing, and drying processes. One large blending machine was used in each of these blending rooms. They were powered by a single industrial electric motor that was placed between the two blending rooms, separated by concrete firewalls to protect the blending operations from possible sparks. Since climate control was a crucial component in this process, one large room in the building was dedicated to air conditioning and ventilation equipment.

The blended phosphorus/strontium compound was pressed into pellets in the Tracer and Igniter Pellet Building (either Building 1941 or 1942), and then transferred to the Projectile Loading Building (Building 1917), where the pellets were loaded into 37mm shell casings.

Due to the highly volatile nature of the chemicals involved, this building was designed in the "Arsenal Style," with concrete firewalls that extend through the roofline separating all rooms that housed explosives. This concrete skeleton supports exterior walls that are constructed of lightweight hollow tile blocks that were engineered to absorb and deflect the force of an explosion outward, away from the rest of the building. The broad hip-roof overhang provides a canopy for circulation between rooms that are only accessible to each other from the exterior.

General Description: Building 1946 (30'-4" x 80'-4") is a one-story, hip-roofed building located in the original North Loading Plant Area. It is composed of a series of individual rooms separated by concrete fire walls and the red hollow tile infill characteristic of the Arsenal style. The fire walls extend up through the roof and step down as the roof slopes to the north and south, maintaining a slope parallel to the roof pitch. The roof is surfaced with corrugated asbestos which is original to the building.

In plan, the north side of the structure has two rooms across the elevation, while the south side contains two rooms separated by one smaller room. Between these lines of rooms are five others which run along the east and west elevations. Each of the two rooms on the north side contain a double entry door and a nine-pane window with concrete sills and lintels. Each of the three rooms on the south side contain double metal loading doors. The rooms along the east and west sides contain a variety of fenestration; some rooms have only loading doors, others have double entry doors, and others have double entry doors as well as windows. Like most buildings on the Arsenal which were associated with extremely volatile materials, this building has lightning aerials. These aerials, however, do not sit on the ridge line. Rather, they rest on the tops of the fire walls which extend through the roof of the building.